

34th International Conference on Production Engineering - ICPE

After a period in which it was thought that European companies have to deal predominantly with the research and development of new products, and production should be organized in countries with cheap labor, Europe has realized that this path leads to a recession. Europe needs strong, innovative production, based on results of contemporary research. This production has to be sustainable not only from the economic point of view, but also from the environmental and social ones. Only with new innovative technologies can Europe compete with the production based on cheap labor.

34th International Conference on Production Engineering (ICPE) was held from 28th to 30th September 2011 in Niš, Serbia. This is the oldest conference in the field of production engineering in Southeast Europe. The first conference on Production Engineering was held in 1965 in Belgrade, followed by the second in Zagreb (1966), third in Ljubljana and so on. Several decades long tradition is continued by the University of Niš, Faculty of Mechanical Engineering. The organizer of the 34th ICPE was the Department of Manufacturing, IT and Management of this faculty.

The conference covered current topics in the field of production engineering with an emphasis on new technologies – the effects and importance of their introduction into manufacturing processes, the globalization of industry and technology transfer. As in all previous years, the aim of the Conference on Production Engineering was gathering and sharing experience of the researchers from the university and institutes and the experts from the industry. The new quality of the conference is that it has become international.

180 papers were submitted for the conference. After the review process, during which each paper has been reviewed by two anonymous reviewers, 119 papers were accepted for the presentation at the conference. This review procedure contributed to increasing the quality of the conference. These papers are included in the Proceedings of the 34th International Conference on Production Engineering, in the printed and electronic (accompanying CD) form. The authors of the papers were from the following sixteen European countries: Austria, Bosnia and Herzegovina, France, Germany, Montenegro, Slovenia, Slovakia, Czech Republic, Croatia, Poland, Romania, Belarus, Macedonia, Greece, Great Britain and Serbia. In addition, five invited lectures of distinguished professors were held at the conference: prof. Herve Panetto, prof. Vidosav Majstorović, prof. Dorian Marjanović, prof. Petar Petrović and prof. Vladimir Milačić.

In order to spread excellence and make better visibility, *Strojarstvo* offered the authors of most interesting papers to present the results of their research in an extended format. To fulfill the quality standards of *Strojarstvo*, all the submitted papers went through the usual review process. Finally, seventeen papers were prepared and published in this issue.

Zuprel and Čuš [1] present a tool condition monitoring system that can detect tool breakage in real time using a combination of a neural decision system, an ANFIS tool wear estimator and a machining error compensation module. Madić *et al.* [2] demonstrated optimization and control of two manufacturing processes using software prototype "Function Analyzer". Antić *et al.* [3] propose a method which allows determination of tool wear degree through separation of reliable indicators from the high-frequency spectrum of the measured vibration signals. Madić, Radenković and Radovanović [4] present artificial neural network (ANN) models developed to predict the mechanical properties and machinability of Cu–Sn–Pb–Si–Ni–Fe–Zn–Al alloys on the basis of the chemical composition of alloying elements.

Modeling of machine tool behavior is a difficult task. In paper [5], Čiča *et al.* describe the complete procedure for mathematical modeling of dynamic behavior of a spindle - holder – tool assembly as well as experimental verification of model. Stepien [6] presents a novel, V-block, method for in situ cylindricity measurement. Borojević *et al.* [7] propose the methodology for the identification of accessibility of faces of 3D model of the workpiece, for the purpose of its positioning and clamping, by using a developed software application.

Marinković and Zehn [8] present a co-rotational FEM-formulation developed to meet the needs of simulating geometrically nonlinear deformational behavior at interactive frame rates. The formulation has been enriched with a coupled-mesh technique to enable the usage of rougher FEM models to compute deformational behavior of complex geometries. Another sophisticated application of FEM for tire analysis is presented in [9] by Korunovic *et al.*

Papers [10] and [11] belong to the field of deep drawing. Aleksandrović *et al.* [10] present results of experimental research on the influence of increasing and decreasing drawbead height functions in combination with increasing-decreasing function of contact pressure. Marinković *et al.* [11] demonstrated application of software DDCP developed for designing the multi-step deep-drawing processes in manufacturing of cylindrical cups. The paper [12] written by Jurković *et al.* presents experimental determination, mathematical modeling, analytical calculation and verification of the rolling force.